

# KS5 Long Term Plan 2021-2022

## Subject: Mathematics

### Exam Board: Edexcel



#### Statement of Intent

##### AO1

Use and apply standard techniques Students should be able to:

- select and correctly carry out routine procedures; and
- accurately recall facts, terminology and definitions

##### AO2

Reason, interpret and communicate mathematically Students should be able to:

- construct rigorous mathematical arguments (including proofs)
- make deductions and inferences
- assess the validity of mathematical arguments
- explain their reasoning; and
- use mathematical language and notation correctly.

##### AO3

Solve problems within mathematics and in other contexts Students should be able to:

- translate problems in mathematical and non-mathematical contexts into mathematical processes
- interpret solutions to problems in their original context, and, where appropriate, evaluate their accuracy and limitations
- translate situations in context into mathematical models
- use mathematical models; and
- evaluate the outcomes of modelling in context, recognise the limitations of models and, where appropriate,

## **Statement of Implementation**

In KS5 the A Level mathematics curriculum is studied at a rapid pace with the focus on exam practice and interleaving in every lesson. Students at every ability are exposed to A Level questions in every lesson. Where possible our pedagogy is underpinned by mastery approach to the teaching of mathematics for understanding, rather than a repetition of the process.

Concepts are broken down into small connected and structured steps and linked with different areas of mathematics, so that students can see it as a whole subject.

Homework supports and further consolidates the learning that happens in class. A minimum of an hour of work is set every lesson, with further consolidation sheets set throughout the year to interleave previous content.

Pink booklets are used in Y12 to enable students to easily find video links to topics they study in class as well as evaluate their progress and identify areas they need to study further at home. Each topic is linked to a TLMaths clip, which means students always have a point of reference for independent study.

In Y12 and Y13 – teachers plan in collaboration to ensure consistency in approach. Each lesson starts with a mini-test, so that students get used to regular, low-stake testing.

KS5 clinic runs twice a week to provide students with a dedicated sessions where they can get help with topics they don't fully understand, this session is also used as compulsory intervention time when it is needed throughout the year.

<b>Term</b>	<b>Topics Covered</b> (Date completed by and number of lessons)	<b>Skills/AOs/interleaved content</b>	<b>Assessment</b> (date and nature of assessment)
Yr 12 Autumn 1	<b>Pure Content:</b> Graphs and Transformations Co-ordinate Geometry Algebraic Methods Quadratics and Inequalities	<ul style="list-style-type: none"> <li>• <b>AO1 Use and apply standard techniques</b></li> <li>• <b>AO2 Reason, interpret and communicate mathematically</b></li> <li>• <b>AO3 Solve problems within mathematics and in other contexts</b></li> </ul>	<b>Transition Assessment 4<sup>th</sup> October</b> – to assess the work students completed between school closure and the end of term and over the summer. To help assess students suitability for the course.
Yr 12 Autumn 2	<b>Pure Content:</b> Trigonometry Integration Differentiation Binomial Expansion Logarithms	<ul style="list-style-type: none"> <li>• <b>AO1 Use and apply standard techniques</b></li> <li>• <b>AO2 Reason, interpret and communicate mathematically</b></li> <li>• <b>AO3 Solve problems within mathematics and in other contexts</b></li> </ul>	<b>Mini Tests w/b 15<sup>th</sup> Nov and 13<sup>th</sup> Dec</b> – to assess content taught since Transition Test. To help inform students of where to target their independent work.
Yr 12 Spring 1	<b>Pure Content:</b> Vectors Trigonometry Exponentials and Natural Logs  <b>Applied Content:</b> Modelling in Mechanics Data Collection	<ul style="list-style-type: none"> <li>• <b>AO1 Use and apply standard techniques</b></li> <li>• <b>AO2 Reason, interpret and communicate mathematically</b></li> <li>• <b>AO3 Solve problems within mathematics and in other contexts</b></li> </ul>	<b>January Assessments 31<sup>st</sup> Jan</b> – to assess student’s knowledge of the course so far. Full Pure Assessment. To see whether targeted intervention is required for specific topics/students.
Yr 12 Spring 2	<b>Applied Content:</b> Kinematics Forces Data Processing and Interpretation Probability	<ul style="list-style-type: none"> <li>• <b>AO1 Use and apply standard techniques</b></li> <li>• <b>AO2 Reason, interpret and communicate mathematically</b></li> <li>• <b>AO3 Solve problems within mathematics and in other contexts</b></li> </ul>	<b>Mini Tests w/b 21<sup>st</sup> and 28<sup>th</sup> March</b> – to assess content taught since Jan exams. To help inform students where to focus their independent work.
Yr 12 Summer 1	<b>Applied Content:</b> Variable Acceleration Statistical Distributions Hypothesis Testing <b>END OF Y12 CONTENT</b>  <b>Pure Content:</b> Functions Proof by Contradiction	<ul style="list-style-type: none"> <li>• <b>AO1 Use and apply standard techniques</b></li> <li>• <b>AO2 Reason, interpret and communicate mathematically</b></li> <li>• <b>AO3 Solve problems within mathematics and in other contexts</b></li> </ul>	<b>Mini Tests w/b 16<sup>th</sup> and 23<sup>rd</sup> March</b> – to assess content taught since last mini test. To help inform students where to focus their independent work.
Yr 12 Summer 2	<b>Pure Content:</b> Functions Radians Differentiation Partial Fractions Binomial Expansion	<ul style="list-style-type: none"> <li>• <b>AO1 Use and apply standard techniques</b></li> <li>• <b>AO2 Reason, interpret and communicate mathematically</b></li> <li>• <b>AO3 Solve problems within mathematics and in other contexts</b></li> </ul>	<b>EOY 12 Assessments</b> – to assess all content covered so far AS and A2.
Yr 13 Autumn 1	<b>Pure Content:</b> Trigonometric Functions Trigonometry and Modelling	<ul style="list-style-type: none"> <li>• <b>AO1 Use and apply standard techniques</b></li> <li>• <b>AO2 Reason, interpret and communicate mathematically</b></li> <li>• <b>AO3 Solve problems within mathematics and in other contexts</b></li> </ul>	<b>Y13 mock</b> – to assess full AS knowledge and A2 content covered so far. To see if intervention is needed for any specific topic/student.

Yr 13 Autumn 2	<b>Pure Content:</b> Differentiation Parametric Equations	<ul style="list-style-type: none"> <li>• <b>AO1 Use and apply standard techniques</b></li> <li>• <b>AO2 Reason, interpret and communicate mathematically</b></li> <li>• <b>AO3 Solve problems within mathematics and in other contexts</b></li> </ul>	<b>Pre Mock Assessments 7<sup>th</sup> and 8<sup>th</sup> December</b> – To assess all AS and A2 content learned so far in order to give students the best idea of what to focus their revision on for their PPE's
Yr 13 Spring 1	<b>Pure Content:</b> Differentiation Revision	<ul style="list-style-type: none"> <li>• <b>AO1 Use and apply standard techniques</b></li> <li>• <b>AO2 Reason, interpret and communicate mathematically</b></li> <li>• <b>AO3 Solve problems within mathematics and in other contexts</b></li> </ul>	<b>Y13 PPE's</b> – to assess student's knowledge of all AS and A2 content covered so far. To see if intervention is needed for any specific topic/student.
Yr 13 Spring 2	<b>Pure Content:</b> Integration	<ul style="list-style-type: none"> <li>• <b>AO1 Use and apply standard techniques</b></li> <li>• <b>AO2 Reason, interpret and communicate mathematically</b></li> <li>• <b>AO3 Solve problems within mathematics and in other contexts</b></li> </ul>	
Yr 13 Summer 1	<b>Pure Content:</b> Numerical Methods Revision	<ul style="list-style-type: none"> <li>• <b>AO1 Use and apply standard techniques</b></li> <li>• <b>AO2 Reason, interpret and communicate mathematically</b></li> <li>• <b>AO3 Solve problems within mathematics and in other contexts</b></li> </ul>	